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IMPLEMENTATION PLAN REVIEW FOR GEORGIA AS REQUIRED BY THE ENERGY SUPPLY AND ENVIRONMENTAL COORDINATION ACT

Environmental Protection Agency

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Argonne National Laboratory

April 1975

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Section IV of the Energy Supply and Environmental Coordination Act of 1974, (ESECA) requires EPA to review each State Implementation Plan (SIP) to determine if revisions can be made to control regulations for stationary fuel combustion sources without interfering with the attainment and maintenance of the national ambient air quality standards. This document, which is also required by Section IV of ESECA, is EPA's report to the State indicating where regulations might be revised.

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IMPLEMENTATION PLAN REVIEW

FOR

GEORGIA

AS REQUIRED

BY

THE ENERGY SUPPLY

AND

ENVIRONMENTAL COORDINATION ACT

U. S. ENVIRONMENTAL PROTECTION AGENCY

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GEORGIA
ENERGY SUPPLY AND ENVIRONMENTAL COORDINATION ACT
SECTION IV - STATE IMPLEMENTATION PLAN REVIEW

PREPARED BY THE FOLLOWING TASK FORCE:

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U. S. Environmental Protection Agency
Office of Air and Waste Management
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

April 1975

IMPLEMENTATION PLAN REVIEW

FOR

GEORGIA

Required by the Energy Supply and Environmental Coordination Act

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IMPLEMENTATION PLAN REVIEW
FOR
THE STATE OF GEORGIA
REQUIRED BY THE ENERGY SUPPLY AND ENVIRONMENTAL COORDINATION ACT

1.0 EXECUTIVE SUMMARY

The enclosed report is the U. S. Environmental Protection Agency's (EPA) response to Section IV of the Energy Supply and Environmental Coordination Act of 1974 (ESECA). Section IV requires EPA to review each State Implementation Plan (SIP) to determine if control regulations for stationary fuel combustion can be revised without interfering with the attainment and maintenance of the National Ambient Air Quality Standards (NAAQS). In addition to requiring that EPA advise the state as to whether control regulations can be revised, ESECA provides that EPA must approve or disapprove any revised regulations relating to fuel burning stationary sources within three months after they are submitted to EPA by the states. The states may, as under the Clean Air Act of 1970, initiate State Implementation Plan revisions; ESECA does not, however, require states to change any existing plan.

Congress has intended that this report provide the state with information on excessively restrictive control regulations. The intent of ESECA is that SIPs, wherever possible, be revised in the interest of conserving low-sulfur fuels or converting to coal, sources which burn oil or natural gas. EPA's objective in carrying out the SIP reviews, therefore, has been to try to determine if emissions from certain combustion sources may be increased without interfering with the attainment and maintenance of standards. If so, it may be possible through altered resource allocations to effect significant "clean fuel savings" in a manner consistent with both environmental and national energy needs.

In many respects, the ESECA SIP reviews parallel the implementation of EPA's policy on clean fuels. Under the Clean Fuels Policy, implementation plans have been reviewed with a view to saving low sulfur fuels. Where the primary sulfur dioxide air quality standards will not be exceeded, states have been encouraged to either defer attainment of secondary standards or

to revise the SO_2 emission regulations. The states have also been asked to discourage large-scale shifts from coal to oil where this could be done without jeopardizing the attainment and maintenance of the NAAQS.

To date, this activity has involved only those states with the largest clean fuels savings potentials. Several of these states have revised or are currently in the process of revising their SO_2 regulations. These states are generally in the eastern half of the United States. ESECA, however, requires the analysis of potentially over-restrictive regulations in all 55 states and territories. In addition, the current reviews address the attainment and maintenance of all the National Ambient Air Quality Standards.

The adoption of emission limitations which may, in some areas of the states, be overly restrictive (or not restrictive enough) resulted largely from the use of the "example region" approach along with analyses which considered the "hot spots" of an Air Quality Control Region (AQCR) rather than the entire region. This type of approach was offered in EPA guidelines for plan development when states were preparing their original plans. Many states, through concurrence with EPA, adopted the example region approach, largely because of the short timetable dictated by the Clean Air Act. Also, in most cases, the original SIPs were designed to attain and maintain the original NAAQS, some of which have since been designated as "guides" only or actually rescinded. However, many states adopted and retained the original federal standards or, in a few cases, adopted more restrictive state standards, and these served as the basis on which their SIPs were approved. As a result, the requirements of many state plans conflict with legitimate national energy concerns, and thus a review of the State Implementation Plans is a logical follow-up to EPA's initial appraisal (1972) of the SIPs. At the time, SIPs were approved by EPA if they demonstrated the attainment of the original NAAQS or the more stringent state air quality standards. Also, at that time an acceptable method for formulating control strategies was the use of an example region for demonstrating the attainment of the standards.

The example region concept permitted a state to identify the most polluted air quality control region and adopt control regulations which would

be adequate to attain the NAAQS in that region. In using an example region, it was assumed that NAAQS would be attained in the other AQCRs of the state if the control regulations were applied to similar sources. But use of an example region can result in excessive controls, especially in the utilization of clean fuels, for areas of the state where sources would not otherwise contribute to NAAQS violations. For example, a control strategy based on a particular region or source can result in a regulation requiring one percent sulfur oil to be burned statewide, even though the use of three percent sulfur coal would be adequate to attain NAAQS in some locations.

EPA anticipates that a number of states will use the review findings to assist them in deciding whether or not to revise portions of their State Implementation Plans. However, it is most important for such states to recognize the limitations of the present review. The findings of this report are by no means conclusive and are neither intended nor adequate to be the sole basis for SIP revisions; they do, however, represent EPA's best judgment and effort in complying with the ESECA requirements. The time and resources which EPA has had to prepare the reports has not permitted the consideration of growth, economics, and control strategy tradeoffs. Also, there has been only limited dispersion modeling data available by which to address individual point source emissions. Where the modeling data for specific sources was found, however, it was used in the analysis.

The data upon which the reports' findings are based is the most currently available to the federal government. However, EPA believes that the states possess the best information for developing revised plans. The states have the most up-to-date air quality and emissions data, a better feel for growth, and the fullest understanding for the complex problems facing them in the attainment and maintenance of air quality. Therefore, those states desiring to revise a plan are encouraged to verify and, in many instances, expand the modeling and monitoring data used to support EPA's findings. States are encouraged to consider the overall impact which the potential relaxation of overly restrictive emissions regulations for combustion sources might have on their future control programs. This may include air quality maintenance, prevention of significant deterioration, increased TSP, NO_x, and HC emissions which occur in fuel switching, and other potential air pollution situations.

Although the enclosed analysis has attempted to address the attainment of all the NAAQS, most of the review has focused on total suspended particulate matter (TSP) and sulfur dioxide (SO_2) emissions. This is because stationary fuel combustion sources constitute the greatest source of SO_2 emissions and are a major source of TSP emissions.

The Georgia SIP control strategy includes regulations for SO_2 and TSP which consists of emission limitations based upon both source capacity/fuel sulfur content (or equivalent emissions) and source stack height. Presently these stack height regulations are under litigation in the 5th Circuit Court of Appeals (Natural Resources Defense Council, Inc., vs. Environmental Protection Agency, Case No. 72-2402). In response to the case EPA was required to analyze the effectiveness of the source capacity/fuel sulfur content regulation in providing attainment of the NAAQS without considering the effect of the stack height dependent regulation. The results of the analysis showed that with the exception of SO_2 emissions from three power plants, the source capacity/fuel sulfur content regulation was sufficient to provide attainment of the NAAQS. If the Court rules in favor of EPA's analysis, the Georgia SIP emission limitations will be approved in all cases except for three specific power plants, where specific SO_2 emission limits will then be promulgated. This report has attempted to analyze only the restrictiveness of the source capacity/fuel sulfur content regulation on potential Clean Fuels savings.

The following are the principle findings for the State of Georgia (Air Quality Control Regions are shown in Figure 1-1):

- Georgia's ambient air quality standards for TSP are essentially identical to the federal secondary NAAQS,[1] while the state SO_2 standards are more stringent than the corresponding federal standards.
- The statewide regulations for TSP and SO_2 are based upon the example region approach.

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[1]The only difference between the federal and state standards is that Georgia does not permit any excesses of the 24-hour standard, whereas the federal standard permits one excess per year of the 24 hour standard.

- Within the framework of this limited analysis, there appears to be little potential for revising particulate emission limiting regulations in all Georgia AQCR's, with the exception of the Augusta-Aiken Interstate (#53) and the Northeast Georgia Intrastate (#57). However, in the Augusta-Aiken Interstate (#53), the reported TSP air quality values are only slightly below the standards. Thus any relaxation of particulate emission limiting regulations would only tend to aggravate the existing situation. Due to the limited amount of air quality data available in the Northeast Georgia Intrastate (#57), a more detailed analysis is necessary to determine the potential for regulation revision.

- Based on reported 1973 air quality data in Georgia, all regions have the potential for relaxing SO_2 emission limiting regulations. However, present regulations allow for the consumption of up to 3% sulfur content fuel which is readily available. Thus the necessity for regulation revision does not appear to exist, as the present regulations do not require the use of cleaner, low sulfur fuels. However, the three power plants mentioned in the EPA report to the 5th Circuit Count of Appeals (Natural Resources Defense Council, Inc. vs. Environmental Protection Agency, Case No. 72-2402) will require less than 3% sulfur fuels in order to protect the NAAQS as shown below:

Power Plant	AQCR	% Sulfur Required
Hammond	Chattanooga Interstate (#55)	0.7
Atkinson	Metropolitan Atlanta Intrastate (#56)	0.9
Yates	Metropolitan Atlanta Intrastate (#56)	2.5

These limits will need to be promulgated upon the Court's acceptance of the EPA's report.

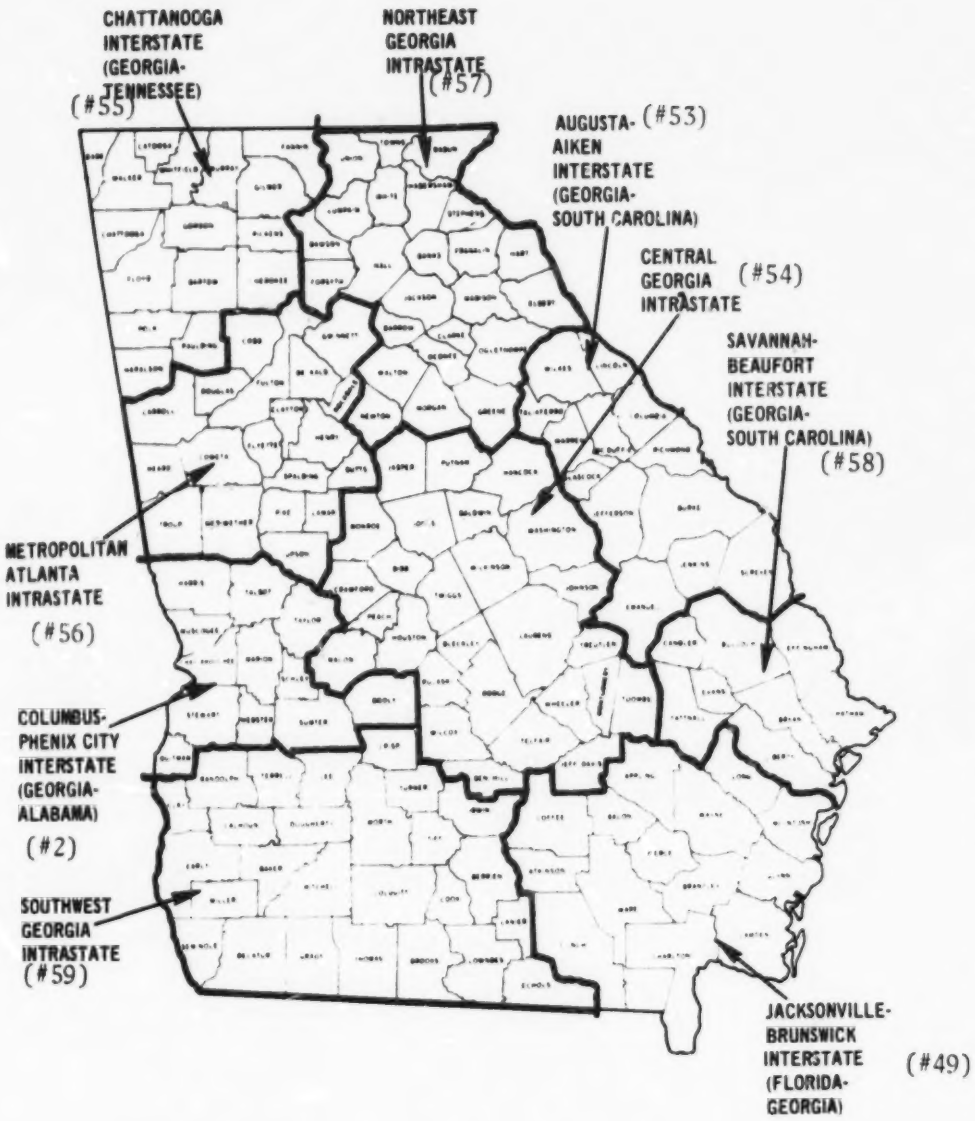

Figure 1-1. Georgia Air Quality Control Regions (AQCRs)

2.0 GEORGIA STATE IMPLEMENTATION PLAN REVIEW

2.1 SUMMARY

A revision of fuel combustion source emissions regulations will depend on many factors. For example:

- Does the state have air quality standards which are more stringent than NAAQS?
- Does the state have emission limitation regulations for control of (1) power plants, (2) industrial sources, (3) area sources?
- Did the state use an example region approach for demonstrating the attainment of NAAQS or more stringent state standards?
- Has the state initiated action to modify combustion source emission regulations for fuel savings; i.e., under the Clean Fuels Policy?
- Are there proposed Air Quality Maintenance Areas?
- Are there indications of a sufficient number of monitoring sites within a region?
- Is there an expected 1975 attainment date for NAAQS?
- Based on (1973) air quality data, are there reported violations of NAAQS?
- Based on (1973) air quality data, are there indications of a tolerance for increasing emissions?
- Are the total emissions from stationary fuel combustion sources a relatively small portion of the regional total?
- Do modeling results for specific fuel combustion sources show a potential for a regulation revision?
- Is there a significant clean fuels savings potential in the region?

This SIP review has answered these questions based on an overall evaluation of EPA's current information. Based on these answers, each AQCR has been assessed as a good, marginal, or poor candidate for regulation relaxation.[1] Table 2-1 summarizes the conclusions of this State Implementation Plan Review and gives the overall candidacy assessment for each AQCR.

[1] For interstate AQCR's, the assessment is for the Georgia portion.

The ratings which are shown in Table 2-1 were determined by assessing the following criteria:

Good	Poor	Marginal
1) Adequate number of air monitoring sites	1) Violation of NAAQS	1) No air quality data or insufficient number of monitoring sites
2) No NAAQS violations	2) Attainment data for NAAQS later than 1975	2) Inconsistent "indicators"
3) Attainment data of 1975 for NAAQS in the SIP	3) Proposed AQMA	
4) No proposed AQMAs	4) Model results show no potential for regulation revision	
5) Modeling results show a potential for regulation revision		

For an AQCR to be rated as a good candidate, all of the criteria listed under "Good" would have to be satisfied. The overriding factor in rating an AQCR as a poor candidate is a violation of either the primary or secondary National Ambient Air Quality Standards during 1973. However, if any of the other conditions listed under "Poor" exists, the AQCR would still receive that rating. The predominant reason for a marginal rating is a lack of sufficient air quality data. In Priority III regions, air monitoring was not required during 1973; therefore there are little if any data with which to determine the current air quality status. Marginal ratings are also given when there are varying or inconsistent "indications".

Table 2-1 STATE IMPLEMENTATION PLAN REVIEW (SUMMARY)

"INDICATORS"	STATE		COLUMBUS-PHENIX INTERSTATE AQCR #2		JACKSONVILLE-BRUNSWICK INTERSTATE AQCR #49		AUGUSTA-AIKEN INTERSTATE AQCR #53		CENTRAL GEORGIA INTRASTATE AQCR #54		CHATTANOOGA INTERSTATE AQCR #55		METROPOLITAN ATLANTA INTRASTATE AQCR #56		NORTHEAST GEORGIA INTRASTATE AQCR #57		SAVANNAH-BEAUFORT INTERSTATE AQCR #58		SOUTHWEST GEORGIA INTRASTATE AQCR #59	
	TSP	SO_2	TSP	SO_2	TSP	SO_2	TSP	SO_2	TSP	SO_2	TSP	SO_2	TSP	SO_2	TSP	SO_2	TSP	SO_2	TSP	SO_2
• Does the State have air quality standards which are more stringent than NAAQS?	NO	YES																		
• Does the State have emission limiting regulations for control of:																				
1. Power plants	YES	YES																		
2. Industrial sources	YES	YES																		
3. Area sources	YES	YES																		
• Did the State use an example region approach for demonstrating the attainment of NAAQS or more stringent State standards?	YES	YES																		
• Has the State initiated action to modify combustion source emission regulations for fuel savings, i.e., under the Clean Fuels Policy?	NO	YES																		
• Are there proposed Air Quality Maintenance Areas?			NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	YES	NO	NO	NO	YES	NO	YES	NO
• Are there indications of a sufficient number of monitoring sites within a region?			YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO	YES	YES	YES	YES
• Is there an expected 1975 attainment date for NAAQS?[3]			YES	1	YES	YES	1	1	YES	1	YES	1	YES	1	1	2	YES	1	YES	1
• Based on reported (1973) Air Quality Data, does air quality meet NAAQS?			NO	YES	NO	NO[4]	YES	YES	NO	YES	NO	YES	NO	YES	YES	NDA	NO	YES	NO	YES
• Based on reported (1973) Air Quality Data, are there indications of a tolerance for increasing emissions?			NO	YES	NO	NO[4]	YES	YES	NO	YES	NO	YES	NO	YES	YES	N/A	NO	YES	NO	YES
• Are the total emissions from stationary fuel combustion sources lower than those of other sources?			YES	YES	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
• Do modeling results for specific fuel combustion sources show a potential for a regulation revision?			NDA	NDA	NDA	YES	NDA	YES	NDA	YES	NDA	YES	NDA	NO	NDA	YES	NDA	YES	NDA	YES
• Must emission regulations be revised to accomplish significant fuel switching?			N/A	NO	N/A	NO	N/A	NO	N/A	NO	N/A	NO	N/A	NO	N/A	NO	N/A	NO	N/A	NO
• Based on the above indicators, what is the potential for revising fuel combustion source emission limiting regulations?			POOR	GOOD	POOR	MARGI-NAL	POOR	GOOD	POOR	GOOD	POOR	GOOD	POOR	POOR	MARGI-NAL	MARGI-NAL	POOR	GOOD	POOR	GOOD

Table 2-1. STATE IMPLEMENTATION PLAN REVIEW (SUMMARY)
(Continued)

[1] Presently meeting standards

[2] Attainment schedule indicates region is below standards; current data is unavailable

[3] Attainment dates specified in Federal Register (May 31, 1972)

[4] Violations in Florida portion of interstate AQCR.

NDA = No data available

N/A = Not applicable

2.2 AIR QUALITY SETTING FOR THE STATE OF GEORGIA

2.2.1 Georgia Air Quality Control Regions

The State of Georgia is divided into nine Air Quality Control Regions as shown in Figure 1-1. There are four intrastate and five interstate regions of which only two, the Chattanooga Interstate (#55) and the Metropolitan Atlanta Intrastate (#56), have a relatively large (greater than 75 people per square mile) population density. Based on present conditions and growth projections for the state, no counties in Georgia are proposed as Air Quality Maintenance Areas (AQMAs) for sulfur oxides. However, Catoosa and Walker Counties in the Chattanooga Interstate AQCR (#55); Clayton, Cobb, DeKalb and Fulton Counties in the Metropolitan Atlanta Intrastate AQCR (#56); Chatham County in the Savannah-Beaufort Interstate AQCR (#58); and Dougherty County in the Southwest Georgia Intrastate (#59); are Georgia counties which have been proposed as AQMAs for particulate matter (Figure 2-1).

2.2.2 Georgia Ambient Air Quality Standards

The State of Georgia, except for one minor difference[1], has adopted the federal secondary National Ambient Air Quality Standard for total suspended particulates as its only standard for TSP. The State sulfur oxides standards consist of an annual and 24-hour standard which are more stringent than the corresponding federal standards, plus a one hour standard. The State does not have an annual standard for nitrogen dioxide. Georgia air quality standards are summarized in Table 2-2. This review considers only the attainment of the federal NAAQS.

2.2.3 Georgia Air Quality Status

Based on data available in the SAROAD data banks as of June 1974, the 24-hour particulate NAAQS has been violated in all except two regions, these being the Augusta-Aiken Interstate AQCR (#53) and the Northeast Georgia Intrastate AQCR (#57). The annual particulate NAAQS has been exceeded in five regions - Columbus-Phenix City Interstate (#2), Jacksonville-Brunswick Interstate (#49), Central Georgia Intrastate (#54), Chattanooga Interstate (#55) and the Metropolitan Atlanta Intrastate (#56). No annual data is available for the

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[1] The difference is that the 24-hour Georgia TSP standard cannot be exceeded anytime, whereas the federal standard can be exceeded once a year.

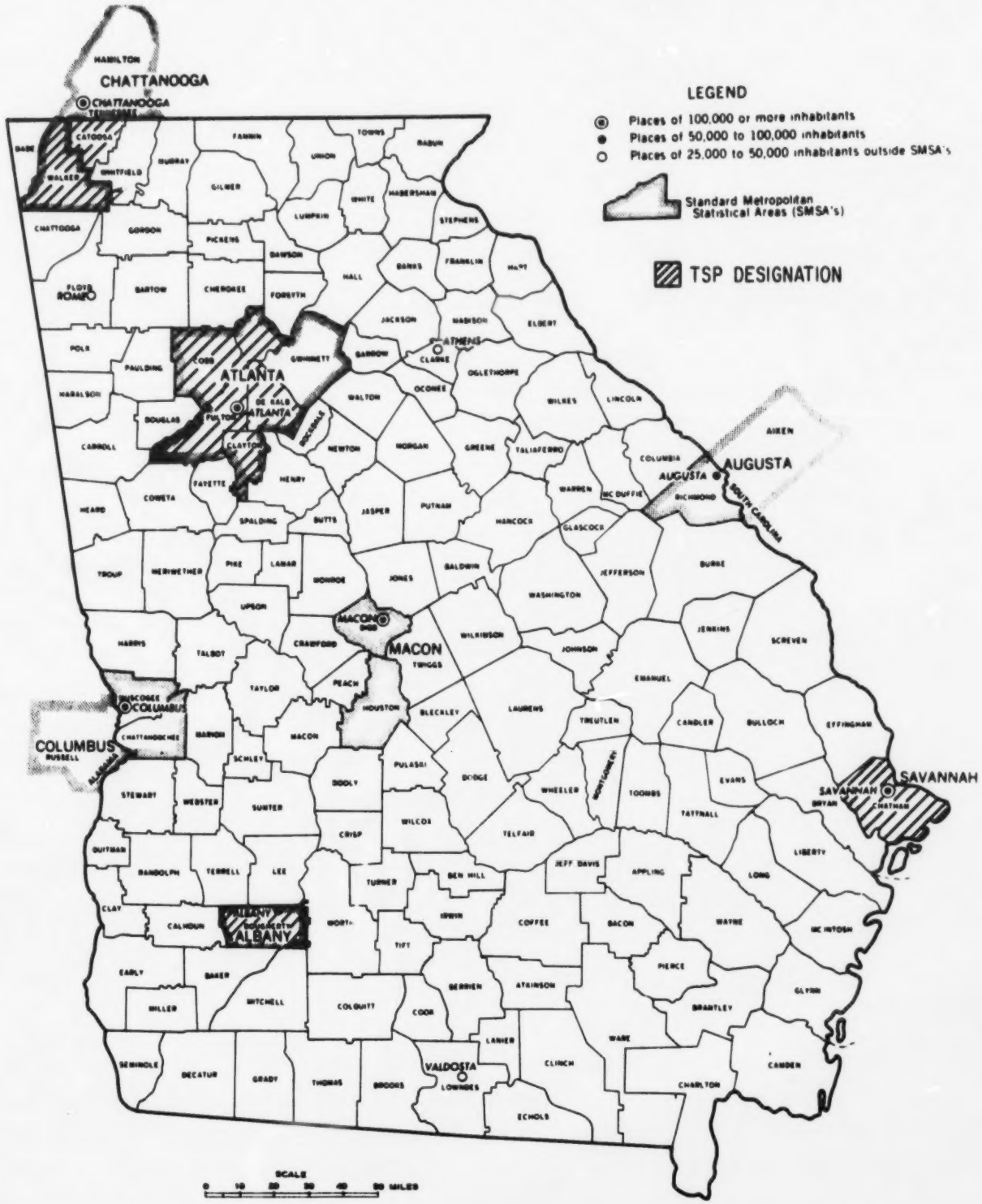

Figure 2-1. Proposed Georgia Air Quality Maintenance Areas (AQMAs)

Table 2-2. Georgia Ambient Air Quality Standards

All concentrations in $\mu gms/m^3$

		Total Suspended Particulate		Sulfur Oxides				Nitrogen Dioxide
		Annual	24-Hour	Annual	24-Hour	3-Hour	1-Hour	Annual
Federal	Primary	75(G)	260[a]	80(A)	365[a]	---	---	100(A)
	Secondary	60(G)	150[a]	---	---	1300[a]	---	100(A)
State		60(G)	150	43(A)	229	---	715	---

[a]Not to be exceeded more than once per year.

(A) Arithmetic mean
(G) Geometric mean

Northeast Georgia Intrastate AQCR (#57). Thus, with the possible exceptions of the Augusta-Aiken Interstate (#53) and the Northeast Georgia Intrastate (#57) regions, it appears that the relaxation of particulate emission regulations would not be possible without disrupting NAAQS attainment or maintenance.

SO_2 air quality data is unavailable for the Northeast Georgia Intrastate region (#57). In the remaining eight regions, only one, the Jacksonville-Brunwick Interstate (#49) reports any violations of the SO_2 NAAQS. However, these violations are in the Florida portion of this AQCR.

2.2.4 Georgia Emissions Summary

Georgia fuel combustion particulate emissions account for less than half of the total particulate emissions in all AQCR's. Power plants are the major fuel combustion particulate sources in the Central Georgia Intrastate (#54), while industrial/commercial/institutional point sources predominate in the Jacksonville-Brunswick Interstate (#49), Augusta-Aiken Interstate (#53), Savannah-Beaufort Interstate (#58), Southwest Georgia Intrastate (#59) and the Chattanooga Interstate (#55) regions.

Power plants contribute the largest fraction of sulfur dioxide emissions in six AQCR's - the Jacksonville-Brunswick Interstate (#49), the Central Georgia Intrastate (#54), the Chattanooga Interstate (#55), Metropolitan Atlanta Intrastate (#56), Savannah-Beaufort Interstate (#58), and the Southwest Georgia Intrastate (#59). Industrial/commercial/institutional point fuel combustion sources are the major SO_2 emitters in the Augusta-Aiken Interstate (#53) region. Area sources are significant in the Columbus-Phenix City Interstate (#2) and the Northeast Georgia Intrastate (#57) AQCR's.

2.3 BACKGROUND ON THE DEVELOPMENT OF THE CURRENT STATE IMPLEMENTATION PLAN

2.3.1 General Information

The example region approach was used in developing the Georgia State Implementation Plan, with the Metropolitan Atlanta (#56) and Savannah-Beaufort (#58) AQCR's being selected. Both of these regions were used to develop control strategies for particulate matter and SO_2. A dispersion model (the Air Quality Display Model) was employed to demonstrate the effectiveness of the strategies.

2.3.2 Particulate Control Strategy

The control strategy for particulate matter for fuel combustion sources consists of enforcing Section 391-3-1-.02 of the Georgia Department of Natural Resources rules. The strategy basically consists of two parts, one for equipment in operation or under construction before January 1, 1972 and one for all equipment constructed after that date. Emission limits were imposed based on a heat input and stack height basis. Table 2-3 summarizes the regulations.

2.3.3 Sulfur Dioxide Control Strategy

The SO_2 control strategy involves imposing emission limits based on the location (urban or rural), heat input (in terms of Btu's per hour), fuel sulfur content and stack height(s) of a fuel burning installation.

2.4 SPECIAL CONSIDERATIONS - STATE OF GEORGIA

The Georgia SIP control strategy includes regulation for SO_2 and TSP which consists of emission limitations based upon both source capacity/fuel sulfur content (or equivalent emissions) and source stack height. Presently these stack height regulations are under litigation in the 5th Circuit Court of Appeals (Natural Resources Defense Council, Inc. vs. Environmental Protection Agency, Case No. 72-2402). In response to the case EPA was required to analyze the effectiveness of the source capacity/fuel sulfur content regulation in providing attainment of the NAAQS without considering the effect of the stack height dependent regulation. The results of the analysis showed that with the exception of SO_2 emissions from three power plants, the source capacity/fuel sulfur content regulation was sufficient to provide attainment of the NAAQS. If the Court rules in favor of EPA's analysis, the Georgia SIP emission limitations will be approved in all cases except for three specific power plants[1] where specific SO_2 emission limits will then need to be promulgated.

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[1] These are Hammond in the Chattanooga Interstate AQCR (#55); Atkinson and Yates in the Metropolitan Atlanta Intrastate AQCR (#56).

Table 2-3 Georgia Fuel Combustion Emission Regulations

Particulate Matter

(1) No person shall cause, let, suffer, permit or allow the emission of fly ash and/or other particulate matter from any fuel-burning equipment in operation or under construction on or before January 1, 1972; in amounts equal to or exceeding the following:

(i) for equipment less than 10 million Btu heat input per hour:

P = 0.7 pounds per million Btu heat input;

(ii) for equipment equal to or greater than 10 million Btu heat input per hour; or equal to or less than 2,000 million Btu heat input per hour:

$P = 0.7 \left(\frac{10}{R}\right)^{0.202}$ pounds per million Btu heat input;

R = heat input of fuel burning equipment in million Btu per hour

(iii) equipment larger than 2,000 million Btu heat input per hour:

P = 0.24 pounds per million Btu heat input.

(2) No person shall cause, let, suffer, permit or allow the emission of fly ash and/or other particulate matter from any fuel-burning equipment constructed after January 1, 1972, in amounts equal to or exceeding the following:

(i) for equipment less than 10 million Btu heat input per hour:

P = 0.5 pounds per million Btu heat input

(ii) for equipment equal to or greater than 10 million Btu heat input per hour, or equal to or less than 250 million Btu heat input per hour:

$P = 0.5 \left(\frac{10}{R}\right)^{0.5}$ pounds per million Btu heat input:

R = heat input of fuel burning equipment in million Btu per hour

(iii) for equipment greater than 250 million Btu heat input per hour:

P = 0.10 pounds per million Btu heat input

Table 2-3 Georgia Fuel Combustion Emission Regulations (Cont'd)

(3) At any site from either fuel burning or manufacturing process emission sources, located within one mile from the limits of a city having a population of 50,000 or more, with the exception of asphaltic concrete hot mix plants, cupola furnaces for metallurgical melting, and Kaolin and Fuller's earth processes, no person shall cause, let, permit, suffer or allow the emission of fly ash and/or other particulate matter equal to or exceeding:

(i) for stack heights below 120 feet - $P = 0.48\ h_s$ pounds per hour;

(ii) for stack heights below 120 feet but equal to or greater than 120 feet - $P = 900\ (\frac{h_s}{300})^3$ pounds per hour;

(iii) for stack heights equal to or greater than 300 feet - $P = 900\ (\frac{h_s}{300})^2$ pounds per hour;

(iv) P = the maximum fly ash and/or other particulate emissions in pounds per hour;

(v) h_s = the stack height in feet;

(vi) if several stacks are located at a given site, then the stack height to be used in the above equations will be the weighted average stack height given by:

$$h_s = \frac{h_1A_1 + h_2A_2 + \cdots h_hA_n}{A_{total}}$$

where h_1 is the height of the first stack, A_1 is the fly ash and/or particulate matter emission from the first stack, h_2 is the height of the second stack, and so forth. A_{total} is the total ash and particulate matter emissions at the site, in pounds per hour. No single stack may equal or exceed the above allowed emissions calculated using its own stack height.

Table 2-3 Georgia Fuel Combustion Emission Regulations (Continued)

Sulfur Dioxide

(1) No person shall cause, let, suffer, permit or allow from any source the emission of sulfur dioxide (SO_2) equal to or exceeding:

(i) for stack height(s) less than 300 feet -

$$S = 4{,}000F\left(\frac{h_s}{300}\right)^3 \text{, in pounds per hour;}$$

(ii) for stacks 300 feet or greater in height -

$$S = 4{,}000F\left(\frac{h_s}{300}\right)^2 \text{, in pounds per hour;}$$

(iii) F = 0.8, when two or more fuel-burning sources each having a heat input of more than 500 million Btu's per hour and burning fuel containing more than 1% sulfur by weight are located in an urban area;

(iv) F = 1, for other fuel-burning sources located in an urban area, and for all other kinds of sources emitting sulfur dioxide regardless of location;

(v) F = 2, for fuel-burning sources having a heat input less than 10,000 million Btu's per hour, and located in a rural area;

(vi) F = 3, for fuel burning sources having a heat input equal to or greater than 10,000 Btu's per hour, and located in a rural area.

(vii) For the purposes of this section, the term "urban" shall mean any site located within or 5 miles from the limits of a city having a population of 50,000 or more; the term "rural" will apply to all other site locations.

(viii) h_s is the stack height in feet. If several stacks are located at a given site, then the stack height to be used above will be the weighted average stack height given by

$$h_s = \frac{h_1S_1 + h_2S_2 + \cdots + h_nS_n}{S_{total}}$$

where h_1 is the height of the first stack, S_1 is the sulfur dioxide emitted from the first stack, h_2 is the height of the

Table 2-3. Georgia Fuel Combustion Emissions Regulations (Continued)

second stack, and so forth. S_{total} is the total sulfur dioxide emission at the site. S is expressed in pounds per hour sulfur dioxide from a stack. No single stack may exceed the above allowed emission calculated using its own actual height.

(2) New fuel-burning sources over 250 million Btu's of heat input per hour, that are constructed or extensively modified after January 1, 1972, may not emit sulfur dioxide equal to or exceeding:

(i) 0.8 lbs of sulfur dioxide per million Btu's of heat input when oil is fired,

(ii) 1.2 lbs of sulfur dioxide per million Btu's of heat input when coal is fired,

(iii) when different fuels are burned simultaneously in any combination, the applicable standard, expressed as pounds of sulfur dioxide per million Btu's of heat input, shall be determined by proration. Compliance shall be determined using the following formula:

$$\frac{Y\ (0.80) + Z\ (1.2)}{x + y + z}$$

where x = percent of total heat input derived from gas;
y = percent of total heat input derived from oil;
z = percent of total heat input derived from coal.

(3) In addition to the stipulations and limitations in paragraphs (1) and (2) of this subsection, all fuel burning sources below 100 million Btu's of heat input per hour shall not burn fuel containing more than 2.5 percent sulfur by weight. All fuel burning sources having a heat input of 100 million Btu's per hour or greater shall not burn a fuel containing more than 3 percent sulfur by weight.

(4) Notwithstanding the limitations of sulfur content of fuels stated in paragraph (3) above, the director may allow sulfur content greater than that allowed in paragraph (3) above, provided that the source utilizes sulfur dioxide removal and the sulfur dioxide emission does not exceed that allowed by paragraph (3) above, utilizing no sulfur dioxide removal.